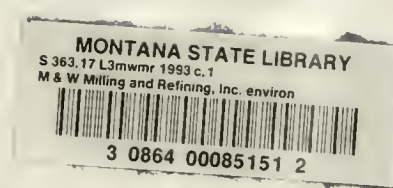


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DEPARTMENT OF STATE LANDS



MARC RACICOT, GOVERNOR

P.O. BOX 201601

STATE OF MONTANA

(406) 444-2074

June 8, 1993

1625 ELEVENTH AVENUE
HELENA, MONTANA 59620-1601

Dear Reader:

Enclosed for your review is an Environmental Assessment (EA) prepared by the Department of State Lands (DSL). The EA evaluates a proposal by M & W Milling and Refining, Inc., to operate a 100 ton per day gravity/flotation mill with a 2 TPD cyanide circuit.

Public comment on this EA will be received by the DSL until 5:00 PM Friday, July 2, 1993.

Comments should be about the adequacy of the EA in assessing issues, new information not considered that may influence the analysis, and clarification. Comments should be specific. The DSL will use these comments and staff responses, the EA, and the application to make a final decision on the permit. The decision may be to approve the proposal, deny the proposal, or approve the proposal with additional modifications.

Comments will be accepted by phone (406) 444-2074, or by writing to:

Pete Strazdas
Hard Rock Bureau
Department of State Lands
1625 11th Avenue
Helena, MT 59620

Thank you for your time and consideration. Please call if you have any questions.

Sincerely,

Pete Strazdas
Reclamation Program Supervisor
Hard Rock Bureau
Reclamation Division

/etc

enclosure

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1625 11th Ave
HELENA, MONTANA 59620

PLEASE RETURN

ENVIRONMENTAL ASSESSMENT

APPLICANT: M & W Milling and Refining, Inc.

TYPE OF OPERATION: Gravity, Flotation, and Cyanide Vat Leach Mill

LOCATION: Sec. 27: T6S R3W COUNTY: Madison

PERSON PREPARING E.A.: Pete Strazdas

APPLICATION COMPLETE: June 7, 1993 E.A. COMPLETE: June 10, 1993
Date Date

				POTENTIAL IMPACTS		
	A	B	C	LONG TERM	SHORT TERM	AMPLIFICATION
PHYSICAL ENVIRONMENT						
1. <u>TOPOGRAPHY</u>			X	X		X
2. <u>GEOLOGY</u> ; Stability			X			
3. <u>SOILS</u> ; Quality, Distribution			X			X
4. <u>WATER</u> ; Quality; Quantity; Distribution			X			X
5. <u>AIR</u> ; Quality			X		X	
6. <u>UNIQUE, ENDANGERED, FRAGILE, or LIMITED</u> environmental resources			X			
BIOLOGICAL ENVIRONMENT						
1. <u>TERRESTRIAL, AVIAN, and AQUATIC</u> ; species and habitats			X		X	X
2. <u>VEGETATION</u> ; quantity, quality, species			X		X	X
3. <u>AGRICULTURE</u> ; grazing, crops production			X		X	
HUMAN ENVIRONMENT						
1. <u>SOCIAL</u> ; structures and mores			X		X	
2. <u>CULTURAL</u> uniqueness, diversity			X		X	
3. <u>POPULATION</u> ; quantity and diversity			X		X	
4. <u>HOUSING</u> ; quantity and distribution			X		X	
5. <u>HUMAN HEALTH & SAFETY</u>			X		X	

				POTENTIAL IMPACTS		
	A	B	C	LONG TERM	SHORT TERM	AMPLIFICATION
6. <u>COMMUNITY & PERSONAL INCOME</u>			X		X	
7. <u>EMPLOYMENT</u> ; quantity and distribution			X		X	
8. <u>TAX BASE</u> ; local and state tax revenue			X		X	
9. <u>GOVERNMENT SERVICES</u> ; demand			X		X	
10. <u>INDUSTRIAL, COMMERCIAL</u> and <u>AGRICULTURAL</u> activities			X		X	
11. <u>HISTORICAL</u> and <u>ARCHAEOLOGICAL</u>			X		X	
12. <u>AESTHETICS</u>			X		X	
13. <u>ENVIRONMENTAL PLANS</u> and <u>GOALS</u> ; local and regional			X		X	
14. <u>DEMANDS</u> on <u>ENVIRONMENTAL RESOURCES</u> of land, water, air and energy			X		X	
15. <u>TRANSPORTATION</u> ; networks and traffic flows			X		X	

CUMULATIVE EFFECTS: See Cumulative Effects section .

PUBLIC INVOLVEMENT: Public Notice

ALTERNATIVES CONSIDERED: Denial - the operator may continue as a small miner, possibly obtaining a small miners cyanide operating permit, but would not be able to run ore from other mines.

COMPLIANCE STATUS: Full Compliance

RECOMMENDATIONS CONCERNING PREPARATION OF AN EIS: Not necessary at this level of disturbance.

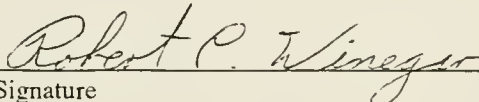
OTHER GROUPS OR AGENCIES CONTACTED OR WHICH MAY HAVE OVERLAPPING JURISDICTION: DHES/Water Quality Bureau and Air Quality Bureau; DFWP; SHPO;

INDIVIDUALS OR GROUPS CONTRIBUTING TO THIS EA: Pete Strazdas, Robert Winegar

A: Significant Unavoidable Impacts

B: Insignificant as a result of conditioned mitigation

C: Insignificant as proposed


Signature



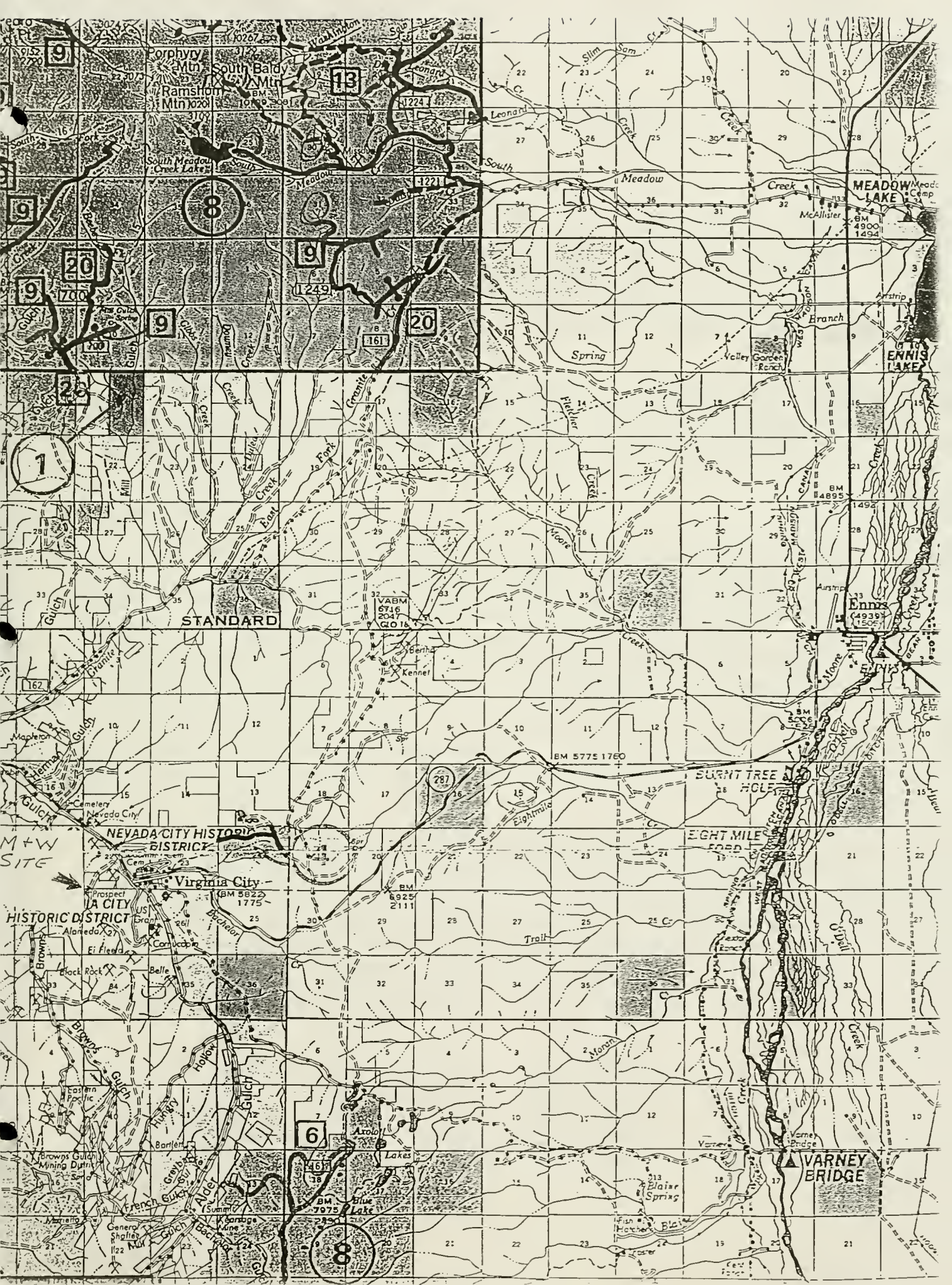
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MAP OF FACILITIES
AT PROSPECT GULCH



M & W MILLING AND REFINING, INC.
ENVIRONMENTAL ASSESSMENT

BACKGROUND

Moen Builders had operated on this site, located in Prospect Gulch, 1.3 miles southwest of Virginia City, Madison County under a Small Miners Exclusion Statement (SMES), and had constructed a gravity tailing impoundment and mill on the site. In January 1993 Moen Builders completed application for a SMES cyanide operating permit on this facility, which would have allowed construction and operation of a cyanide vat leach circuit at the mill.

However, Moen Builders did not post the required reclamation bond, but rather, reorganized as M & W Milling and Refining, Inc. (M&W) and made application for an operating permit for the mill facility in March 1993. This permit would allow M&W to process ore from mines not associated with M&W.

OPERATING PLAN

M&W would mine and reprocess 18,000 tons of old Prospect Mill tailing and 12,000 tons of Prospect Mine waste rock. The old tailing is located in Prospect Gulch below the new mill site and the waste rock is on the bench along the access road.

An estimated 3,500 tons of tailing has eroded down the drainage since abandonment of the old Prospect Mine and Mill. M&W would remove the tailing that remains from the drainage.

Additional ore would be supplied from the Kearsarge Mine, located in Alder Gulch, approximately 5 miles south of the M&W mill. Ore reserves at the Kearsarge are estimated at 400,000 tons.

The ore would be run through a gravity separation circuit in the mill at an estimated rate of 100 tons per day (TPD), or 200 TPD maximum. A flotation circuit would be used as necessary to complete processing of the ore. This process would yield a gravity tailing which would report to the impoundment constructed in Prospect Gulch, and a concentrate which would be further treated in a cyanide vat leach circuit. The cyanide circuit would process an average of 2 TPD of concentrate. The annual total of concentrate is estimated at 1,000 tons. The cyanidated tailing would report to the double lined cyanide impoundment.

Acid-base potential data will be generated for all ores and concentrates to be run through the M&W mill. This data will determine the amount of lime to be added to the tailing to neutralize the tailing and prevent the formation of acid seeps. Two agitated mixing tanks have been added to the mill flow circuit to provide for the addition and mixing of lime with

tailing to insure an innocuous waste product relative to acid drainage formation.

Facilities which would or have been constructed as part of this project include, a mill, and 3 acre unlined gravity/flotation impoundment located in Prospect Gulch, a 0.2 acre double lined cyanide tailing impoundment located on the bench above Prospect Gulch, and a bypass channel for Prospect Gulch bypassing the gravity impoundment.

The mill building is constructed on a bermed concrete pad, capable of containing any accidental spill or tank rupture.

The cyanide would be killed within the mill building to 1 - 3 ppm Weak Acid Dissociable (WAD) cyanide and discharged to the cyanide impoundment. The cyanide tailing would be conducted to the impoundment in a double walled pipe. The impoundment would be double lined with 30 and 20 mil PVC liner and equipped with a leak detection system between the liners. Total capacity of this impoundment would be 5,500 tons.

The gravity/flotation impoundment is constructed in a wide portion of Prospect Gulch. The impoundment covers approximately 3 acres.

Prospect Gulch, an intermittent/ephemeral stream, is diverted to the west side of the impoundment in a rock lined diversion sized to carry in excess of the 100 year storm flow.

Three water monitoring compliance points have been established.

A monitoring well has been placed below the cyanide tailing impoundment. This site would be monitored monthly for WAD cyanide and quarterly for a suite of other constituents.

A monitoring well has been placed below the gravity tailing impoundment. This well together with the spring which issues from the dam face will be monitored quarterly for specified constituents.

In addition to these three monitoring points the leak detection system of the cyanide impoundment will be monitored weekly for WAD cyanide.

RECLAMATION PLAN

The outside perimeter of the gravity impoundment has been topsoiled and seeded prior to commencement of operations. Final reclamation of the impoundment will include shaping the tailing into a domal configuration which would shed water. Runoff would be controlled by berms and rip rapped ditches around the dome. The impoundment would be compacted with a roller prior to placing soil. Soil would be placed to a depth of 2 feet and seeded, and

fertilized if necessary. A mix of native wheatgrasses and hard fescue would be seeded.

Reclamation of the cyanide impoundment would entail removal of all solutions from the impoundment, which would then be neutralized in the mill building to the compliance standard of 0.22 ppm WAD cyanide and land applied by sprinkler irrigation on an area designated for that purpose, north of the mill site.

The cyanide impoundment would be shaped into a dome and then capped with a minimum of 3 feet of impervious clay, covered with 900 yards of soil to a depth of 3 feet and seeded with the mix referred to above.

Reclamation of the Prospect waste rock dump site and tailing area would immediately follow removal of this material from the present site. The ore would be removed to the original soil surface, which was covered. The surface would be ripped, then lightly compacted and seeded. The Prospect Gulch drainage would be stabilized by widening the channel and restoring it to nearly original configuration. Washed river cobbles would be placed in the bottom of the drainage to prevent erosion. All disturbed area would then be seeded.

The mill building would be stripped of all processing equipment and cleaned. The building would then be available for other private, non mining related uses.

The bypass channel on the west side of the gravity impoundment would remain as a permanent structure, as would the access road, which provides public access to other mining claims and federal land above the M&W site.

POTENTIAL IMPACTS

Public comments and issues identified by the agencies are analyzed in this section.

PHYSICAL ENVIRONMENT

1. Topography: The mill and cyanide facility are on the west bench of Prospect Gulch at an elevation of 6,025 feet. Surrounding natural bench slopes are rolling to level. These facilities occupy approximately 1.1 acres. This area would be flatter than pre-existing topography.

The gravity/flotation impoundment changes the configuration of the gulch, creating a 3 acre flat in the middle of the gulch with a bypass channel around the west side. After reclamation the flat reclaimed impoundment surface and bypass channel would remain.

2. Soils: Approximately 12,500 yards of soil have been salvaged in conjunction with construction activity under the SMES. This soil has been stockpiled and would be replaced at reclamation. Soil would be replaced at a thickness of 2 feet on the gravity impoundment and 3 feet on the cyanide impoundment.

Some loss of soil microbial activity is expected for the short term. Soil loss by erosion is not expected because the stockpiles have been seeded.

Overall, erosion is controlled at the impoundment and the mill. All slopes have been reseeded.

3. Water: The water requirement of the mill, estimated at 30 gallons per minute (GPM), would be met by a well developed for this purpose. There are four springs in Prospect Gulch, three above and one below the project. The one below, is piped through the gravity impoundment dike and flows at a rate of 12 GPM, and used to maintain surface flow for 150 feet before submerging. This flow is now collected in a rock drain/percolation pond, so that it remains submerged below the dam face.

The water table below the cyanide facility is 45 feet below the surface. The water table below the gravity impoundment is in excess of 89 feet below the surface.

Ground water quality would be monitored at two locations below the gravity impoundment: at the issue of the spring through the dike face, described above, and at a monitoring well completed below the impoundment. The concern is for contamination from residual flotation reagents, arsenic, or acid mine drainage. If these contaminants are detected in either of these two monitoring points, the water would be recirculated to the mill and used as process water.

Contamination below the gravity impoundment by flotation reagents is unlikely. Eighty percent of the flotation reagents are sent to the lined concentrate impoundment. In addition, the reagents to be used are all biodegradable. It is unlikely that the smaller portion (20%) would persist and be conveyed in detectable levels to the ground water.

The potential of ground water contamination by arsenic from the gravity impoundment would depend on the arsenic content of the particular ore that is to be run. This may never be a consideration. If arsenic is detected in either of the monitoring points, the operator would be prohibited from processing any more of that ore. The detection limit for arsenic is 0.005 ppm, which is 10 times less than the Maximum Contaminant Level for drinking water, at 0.05 ppm.

As described in the operating plan section, the mill has the capability of mixing and adding lime to the tailing flow to neutralize acidity. Lime would be added based on acid-base tests

conducted on each type of ore to be run, so that all tailing discharged to the gravity impoundment would be neutral.

There are no other wells or springs below the project. Prospect Gulch enters Alder Gulch one mile below. Given the mentioned depth to groundwater, low levels and biodegradability of the flotation reagents, two monitoring points below the impoundment and pump back capability, it is not expected that any contaminants would reach Alder Gulch.

All cyanide facilities are located out of Prospect Gulch, on a bench. As described previously, the cyanide impoundment would be constructed with a double PVC liner with a leak detection system between the liners. In the event of a leak in the primary liner, solution would be pumped from the inter liner space, tested for contamination, and treated if necessary.

A monitoring well is in place immediately below the cyanide impoundment to detect any contamination which may result in the event that both liners develop leaks. In the event that this well detects cyanide contamination, several remedial options, including pump back wells and a longer cyanide destruction time in the mill would be available. It is not anticipated that measurable amounts of cyanide would escape controlled areas.

BIOLOGICAL ENVIRONMENT

1. Terrestrial, Avian, and Aquatic: The area is year round mule deer habitat. Elk and moose are occasional transients. The concentrate impoundment would be fenced with an eight foot high fence to exclude wildlife and livestock.

The total area of disturbance is small, relative to the area available for big game range, so that wildlife use should not be significantly impacted. After reclamation, most of this area would again be available for wildlife use.

There are no known raptor nest in the area.

Prospect gulch is dry except during storm events or runoff. The nearest fishery is found one mile downstream at the kids fishing pond on Alder Gulch. This pond is stocked with rainbow trout. Alder Gulch contains brown and rainbow trout.

As noted previously, the depth to groundwater, distance to surface water, placement of the cyanide facility away from the water course and other safeguards described above, preclude impacts to this fishery.

2. Vegetation: Native vegetation in the area is a bluebunch wheatgrass/Idaho fescue/big sagebrush community. Disturbances would be reclaimed to a mostly native mix of wheatgrasses and fescues.

CUMULATIVE EFFECTS

There are no known or foreseeable activities in Prospect Gulch other than those described in this document.

The Kearsarge Mine in Alder Gulch, which has been mentioned as a possible source of ore, is undergoing evaluation at this time by Hanover Gold Corp. This activity is being conducted under an Exploration License issued by the Department of State Lands. If the exploration is successful, mining would probably proceed under a small miners exclusion statement (SMES) until the five acre and 36,500 tons per year, size and tonnage restriction of the SMES is reached. If mining progresses at higher levels of production, an operating permit would be required which would entail a permit application to the Department and an environmental review of the proposed activity by the Department.

Similarly, if the Kearsarge Mine were to go to full production, the capacity of the impoundment at Prospect Gulch would eventually be reached. Any expansion of facilities would require an amendment to the permit as well as evaluation of the impacts by the Department.

